1. (Currently Amended) A method of inducing an insulin sensitizing or insulin mimetic effect in a tissue of a patient in need thereof having Type II diabetes, the method comprising administering to the patient 4-hydroxyisoleucine of formula

- 2. (Previously Presented) The method of claim 1, characterised in that said 4-hydroxyisoleucine and/or lactonic form thereof exercises an insulin mimetic and/or insulinsensitizing effect at the level of a peripheral target tissue of insulin.
- 3. (Previously Presented) The method of claim 1, characterised in that said 4-hydroxyisoleucine and/or lactonic form thereof reduces phosphatase activity associated with the signaling route of the insulin receptor, and/or stimulates PI 3-kinase activity on IRS-1 and/or IRS-2.
 - 4. (Canceled).
- 5. (Previously Presented) The method of claim 1, characterised in that the 4-hydroxyisoleucine is presented in the form of its 2S, 3R, 4S isomer or the corresponding lactone.

6-12. (Canceled).

- 13. (Previously Presented) The method of claim 1, wherein administration of the 4-hydroxyisoleucine and/or lactonic form thereof reduces the need of the patient for exogenic insulin.
- 14. (Previously Presented) A pharmaceutical composition or a kit for the treatment of Type II diabetes, comprising both insulin and 4-hydroxyisoleucine of formula

and/or the lactonic form thereof.

15. (Currently Amended) A method of inducing an insulin sensitizing effect in a tissue of a patient in need thereof, wherein the patient has having Type II diabetes, the method comprising administering to the patient 4-hydroxyisoleucine of formula

and/or the lactonic form thereof.

16. (Currently Amended) A method of inducing an insulin mimetic effect in a tissue of a patient in need thereof having Type II diabetes, the method comprising administering to the patient 4-hydroxyisoleucine of formula

- 17. (Previously Presented) The method of claim 1, further comprising administering insulin to the patient.
- 18. (Previously Presented) The method of claim 1, wherein the 4-hydroxyisoleucine and/or lactonic form thereof is orally administered to the patient.
- 19. (Previously Presented) The method of claim 1, wherein the 4-hydroxyisoleucine and/or lactonic form thereof is administered to the patient two times per day.
- 20. (Previously Presented) The method of claim 1, wherein the 4-hydroxyisoleucine and/or lactonic form thereof is administered to the patient three times per day.
- 21. (Previously Presented) The method of claim 1, wherein the 4-hydroxyisoleucine and/or lactonic form thereof is administered in the form of a capsule.
- 22. (Previously Presented) The method of claim 1, wherein the 4-hydroxyisoleucine and/or lactonic form thereof is administered in the form of a tablet.

23. (Previously Presented) A method of treating Type II diabetes by inducing an insulin sensitizing or insulin mimetic effect in a tissue of a patient in need thereof, the method comprising administering to the patient 4-hydroxyisoleucine of formula

and/or the lactonic form thereof.

24. (Previously Presented) A method of treating Type II diabetes by inducing an insulinsensitizing effect in a tissue of a patient in need thereof, the method comprising administering to the patient the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine of formula

- 25. (Previously Presented) The method of claim 24, further comprising administering insulin to the patient.
- 26. (Previously Presented) The method of claim 24, wherein the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine is orally administered to the patient.
- 27. (Previously Presented) The method of claim 24, wherein the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine is administered to the patient once a day.

- 28. (Previously Presented) The method of claim 24, wherein the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine is administered to the patient two times per day.
- 29. (Previously Presented) The method of claim 24, wherein the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine and is administered to the patient three times per day.
- 30. (Previously Presented) The method of claim 24, wherein the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine is administered in the form of a capsule.
- 31. (Previously Presented) The method of claim 24, wherein the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine is administered in the form of a tablet.
- 32. (Previously Presented) The method of claim 24, wherein the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine is administered in the form of a solution.
- 33. (Previously Presented) The method of claim 24, wherein the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine is administered in a powder form.
- 34. (Previously Presented) A method of treating Type II diabetes by inducing an insulin mimetic effect in a tissue of a patient in need thereof, the method comprising administering to the patient the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine of formula

- 35. (Previously Presented) The method of claim 34, further comprising administering insulin to the patient.
- 36. (Previously Presented) The method of claim 34, wherein the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine is orally administered to the patient.
- 37. (Previously Presented) The method of claim 34, wherein the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine is administered to the patient once a day.
- 38. (Previously Presented) The method of claim 34, wherein the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine is administered to the patient two times per day.
- 39. (Previously Presented) The method of claim 34, wherein the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine and is administered to the patient three times per day.
- 40. (Previously Presented) The method of claim 34, wherein the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine is administered in the form of a capsule.

- 41. (Previously Presented) The method of claim 34, wherein the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine is administered in the form of a tablet.
- 42. (Previously Presented) The method of claim 34, wherein the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine is administered in the form of a solution.
- 43. (Previously Presented) The method of claim 34, wherein the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine is administered in a powder form.
- 44. (New) A method of inducing an insulin sensitizing or insulin mimetic effect in a tissue of a patient having hyperinsulinemia, the method comprising administering to the patient 4-hydroxyisoleucine of formula

and/or the lactonic form thereof.

45. (New) A method to combat insulin resistance in a patient in need thereof, comprising administering to the patient the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine of formula

46. (New) A method to combat hyperinsulinemia in a patient in need thereof, comprising administering to the patient the (2S, 3R, 4S) isomer of 4-hydroxyisoleucine of formula

$$H_3C$$
 — CH — CH — CH — $COOH$ OH CH_3 NH_2